

Appl. No. 09/977,643
Amdt. dated February 8, 2006
Reply to Office Action of November 10, 2005

Remarks

The present amendment responds to the final Official Action dated November 10, 2005. The Official Action rejected claim 21 under 35 U.S.C. §112, second paragraph, for purportedly being indefinite. The specification was objected to and the Examiner requested that the status of copending application 08/959,794 be provided therein. Claim 7 was rejected under the judicially created doctrine of double patenting. Claims 1, 4, 21, and 22 were rejected under 35 U.S.C. §102(b) based on Baran et al. U.S. Patent No. 4,771,425 (Baran). Claim 3 was rejected under 35 U.S.C. §103(a) based on Baran in view of Williams et al. U.S. Patent No. 5,883,891 (Williams). Claims 2, 5, 6 and 19 were rejected under 35 U.S.C. §103(a) based on Baran in view of Gordon U.S. Patent No. 5,608,786 (Gordon). Claim 7 was rejected under 35 U.S.C. §103(a) based on Baran in view of Gordon and further in view of Williams. Claim 20 was rejected under 35 U.S.C. §103(a) based on Rahman et al. U.S. Patent No. 5,274,635 (Rahman) in view of Gordon. These grounds of rejection are addressed below following a brief discussion of the present invention to provide context.

Although Applicant does not acquiesce in the obviousness-type double patenting rejection, claim 7 has been cancelled without prejudice to obviate this rejection.

Claims 1, 5, 6, 21, and 22 have been amended to be more clear and distinct. As noted above, claim 7 has been cancelled without prejudice. Claims 8-18 have been previously cancelled without prejudice. Claims 23-31 have been newly added. Claims 1-6 and 19-31 are presently pending.

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The Present Invention

One aspect of the present invention is directed to systems and methods which substantially improve the efficiency of voice communications over a packetized communications system such as the Internet. The approach of the present invention supports the use of variable-length packets and accommodates variable jitter and loss. This aspect of the present invention also achieves increased efficiency, in part, by carrying multiple voice calls over the same transport level connection, thus, avoiding the setup and tear down overhead of creating a transport level connection for each voice call. Additionally, by multiplexing voice signals from multiple calls into a single packet, overhead is further reduced enhancing the ability to support low data-rate voice communications. Since at the time the invention was made new codecs were emerging which could support near toll-quality voice communications at only 8 kilobits per second (kbps) and acceptable quality at 4 kbps, and these low data rate codecs can significantly reduce the cost of providing ITG services, the present invention's support of such low data rate codecs provides an additional cost advantage.

Section 112, Second Paragraph Rejection of Claim 21

Claim 21 was rejected because the Examiner believed the phrase "the transport level connection voice information" at line 4 had no antecedent basis. Applicant respectfully traverses the rejection. The term "transport level connection" should be a separately parsed claim limitation. Line 3 of the original claim 21 provided the proper antecedent basis for the phrase "transport level connection." Claim 21 has been amended, however, to be more clear by moving

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the phrase "voice information from the plurality of voice calls into one data packet" before the term "transport level connection."

Specification Amendment

In response to the Examiner's request to update the status of a copending application, the first paragraph on page 1 has been amended to indicate that copending application 08/959,794 is now an issued patent. Please note that the first paragraph was initially added in a preliminary amendment filed on October 15, 2001.

The Art Rejections

As addressed in greater detail below, Baran, Gordon, Williams and Rahman do not support the Official Action's reading of them and the rejections based thereupon should be reconsidered and withdrawn. Further, the Applicant does not acquiesce in the analysis of Baran, Gordon, Williams and Rahman made by the Official Action and respectfully traverses the Official Action's analysis underlying its rejections.

Claims 1, 4, 21, and 22 were rejected under 35 U.S.C. §102(b) based on Baran. Baran describes an apparatus to multiplex standardized channels into a single channel wherein voice or data are packetized into independently addressable packets. Baran, Abstract. Far from addressing techniques for low bit rate Internet telephony as taught by the present invention, Baran addresses techniques for more efficient utilization of a trunk line such as a DS-1 or T-1 line. While Baran's Fig. 3B shows "the standard T-PCM frame of 24 serial channels each

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carrying an 8-bit sample,” col. 6, lines 59-61, Baran describes a different approach in which “the entire frame forms a packet” in which multiple bits “are provided for packet address information” and the “information in each packet is directed to a single destination.” (emphasis added) Baran, col. 6, line 66 – col. 7, line 11. An example of switched routing at col. 5, lines 58-60 of Baran recites that “terminal 64 may send successive packets of information to the computer 66 through one of two routes.” Claim 1 recites packet gateways arranged to “multiplex voice telephone calls from said first plurality of telephone sets to said second plurality of telephone sets ... into a single packet.” Claim 21, as presently amended, recites, “a controller controlling the network card to establish a transport level connection over the Internet, the controller operating to multiplex voice information from the plurality of voice calls into a single data packet onto the transport level connection, and to maintain the transport level connection so long as voice information is received from one of the plurality of voice calls through the input.” (emphasis added)

The Official Action at paragraph 9 appears to have ignored Applicant’s previous arguments and continues to rely on col. 6, line 59 – col. 7, line 3 and Fig. 3A of Baran. The Amendment dated August 25, 2006 specifically addresses this cited portion of Baran. Rather than countering the analysis of Baran made in the previous amendment, the Examiner relies on the same portion of text for the same suggestion, thus, failing to move this application forward as required under the M.P.E.P.

At paragraph 9, the Official Action continues to rely on the cited portion of text as purportedly suggesting that a number of telephone calls are multiplexed into a single packet.

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Applicant respectfully disagrees. The relied upon text describes how a standard T-PCM frame of 24 serial channels each carrying an 8-bit sample can be allocated to form "a single packet." Although a single packet is illustrated in Fig. 3A as the Examiner suggests, the information carried in the single packet appears to relate to the same call. See, col. 7, lines 6-8 where it states "The information in each packet is directed to a single destination and is independent of the frame to which it is assigned." Furthermore, at col. 7, lines 21-22, Baran states that "the packet contains the destination address." See also, col. 3, lines 18-22 where it discusses a preferred embodiment employing "an independently addressable packet." Unlike the present invention, Baran's single packet containing a single destination address can only terminate at one destination.

In stark contrast to Fig. 3A of Baran, Fig. 3 of the present specification shows multiple voice calls multiplexed into a single packet 300. Each voice call is represented by a data block within the packet. For example, header 302 and data block 304 carrying payload 1 corresponds to voice call 1, utilizing one channel identifier. The header 302 and data block 304 carrying payload 2 corresponds to voice call 2, utilizing a second channel identifier. Baran does not disclose and does not make obvious "voice telephone calls ... multiplexed into a single packet" as presently claimed in claim 1. Baran does not disclose and does not make obvious, "multiplexing voice information from the plurality of voice calls into one data packet onto the transport level connection," as presently claimed in claim 21.

Although Baran discloses trunk multiplexor 18 for switching a voice channel to a packet and vice versa, the trunk multiplexor 18 address an entirely different problem of distributing

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packets across various trunks. There simply is no disclosure that Baran's plurality of telephone sets 56, 58, 60, and 62 have portions of their "voice telephone calls ... multiplexed into a single packet" as presently claimed in claim 1.

The Official Action relies on Baran at col. 6, line 59-col. 7, line 3 and Fig. 3A as purportedly suggesting maintaining a transport level connection so long as voice calls are being made between the first and second location with information from a number of voice telephone calls as claimed. Applicant respectfully disagrees and notes that this cited text has been addressed above. Baran does not disclose and does not make obvious maintaining a transport level connection "so long as voice calls are being made between the first and second locations," as presently claimed in claims 1. See also claim 19, as presently amended, where it recites, "the same transport level connection is maintained so long as voice information is received from one of the different originators." See also claim 21, as presently amended, where it recites a controller operating "to maintain the transport level connection so long as voice information is received from one of the plurality of voice calls through the input." This claim feature advantageously reduces the overhead and increases effective payload on a per voice call basis by establishing a single transport level connection to carry multiple voice calls with multiple destinations. See specification, col. 3, lines 39-44. The cited portion of text and Baran's disclosure, in general, do not address a transport level connection and, thus, cannot address maintaining the transport level connection as long as voice information from a plurality of calls is received as presently claimed.

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Claim 3 was rejected under 35 U.S.C. §103(a) based on Baran in view of Williams.

Williams fails to cure the deficiencies of Baran. Since claim 3 depends from and contains all the limitations of claim 1, claim 3 distinguishes from the references in the same manner as claim 1.

Claims 2, 5, 6 and 19 were rejected under 35 U.S.C. §103(a) based on Baran in view of Gordon. Gordon fails to cure the deficiencies of Baran. Since claims 2, 5, and 6 depend from and contain all the limitations of claim 1, claims 2, 5, and 6 distinguish from the references in the same manner as claim 1. Claim 19, as amended, recites "voice information received from different originators at the origination point and exchanged between ones of the gateways is multiplexed at the same transport level connection and in one data packet." (emphasis added). The Official Action again relies on Baran at col. 6, line 59 – col. 7, line 3 and Fig. 3A as purportedly suggesting this feature. As described above, Baran does not teach and does not suggest multiplexing information from different originators in one data packet as claimed in claim 19.

In light of Baran's September 15, 1988 issue date, rather than constituting evidence of obviousness, Baran is suggestive of the nonobviousness of the present invention. While the Official Action suggests that it is obvious to modify Baran based upon Gordon, it appears clear that Gordon in designing a system long after Baran which does not adopt the techniques suggested to be obvious, but to the contrary, mainly addresses techniques for voicemail, facsimile mail and E-mail rather than voice telephony. See, Gordon, col. 1, lines 5-12, for example. The Official Action relies on Gordon at col. 8, line 62 - col. 9, line 4 as teaching the use of the Internet as a packet network for long distance telephony. The cited portion of text briefly

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addresses Internet telephony and appears to address an arrangement in which the connection is set up as each call is made and is torn down after each call is completed as discussed in the Background of the Present Invention. See, for example, Gordon col. 9, lines 12-14 which suggest that a packet path is established only as a call is originated rather than being maintained so long as calls are continued.

Unlike Gordon, the present invention multiplexes voice information from different originators at the same transport level connection. Furthermore, the same transport level connection is maintained so long as voice information is received from one of the different originators. Claim 19, as presently amended, recites “voice information received from different originators at the origination point and exchanged between ones of the gateways is multiplexed at the same transport level connection and in one data packet that is sent over the Internet, the same transport level connection is maintained so long as voice information is received from one of the different originators.” (emphasis added). Gordon and Baran, taken separately or in combination, do not teach and do not suggest multiplexing voice information at the same transport level connection and in one data packet as presently claimed in claim 19. Furthermore, Gordon and Baran, taken separately or in combination, do not teach and do not suggest maintaining the same transport level connection “so long as voice information is received from one of the different originators.” Even if Gordon were combined with Baran as the Examiner suggests, the terms of the claims will not be met. Claim 19, as amended, therefore defines over the cited art and should be allowed.

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Claim 20 was rejected under 35 U.S.C. §103(a) based on Gordon.

Rahman addresses a method and apparatus for aligning a digital communication data stream across a cell network. To this end, Rahman receives digital data over a circuit switched communication link and assembles the digital data into a set of outbound communication cells for transfer over the cell network. Rahman, col. 3, lines 41-46. Fig. 3 of Rahman illustrates that digital information carried in each DS0 timeslot is assembled into a corresponding outbound cell to be sent over the cell network. See also Rahman, col. 7, lines 38-41. Each of the assembled outbound cells have a header portion which identifies the target for the communication cell, as well as address information and error checking information. Rahman, col. 7, lines 46-49.

Rahman's disclosure is silent with respect to the outbound cells sharing the "same transport level connection" as claimed in presently amended claim 20. However, since the outbound cells are separate, it would appear that each outbound cell would have to have its own transport level connection in order to instruct the far end on how to reassemble cells corresponding to a particular DS0 timeslot. See Rahman, col. 7, lines 51-53.

The Official Action relies on Gordon as teaching that the Internet could be used as a packet network. Gordon fails to cure the deficiencies of Rahman. Even if Rahman and Gordon were combined as the Examiner suggests, the suggested combination would still fail to meet the terms of claim 20 as presently amended. Rahman and Gordon, taken separately or in combination, do not teach and do not suggest multiplexing voice information from different originators "at the same transport level connection," as claimed by presently amended claim 20. Therefore, claim 20 defines over the cited art and should be allowed.

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New dependent claims 23 and 31 have been added to cover more completely certain aspects of the present invention.

Conclusion

All of the presently pending claims, as amended, appearing to define over the applied references, withdrawal of the present rejection and prompt allowance are requested.

Respectfully submitted,



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